

Annex I : SWISSPROT P02593-sequence

>Swiss-Prot|P02593|Release 41.16|11-JUL-2003
ADQLTEEQIAEFKEAFSLFDKDGDTITTKELGTVMRSLGQNPTAELQDMINEVDADGN
GTIDFPEFLTMMARKMKDTSDEEEIREAFRVFDKDGNGYISAAELRHVMTNLGEKLTDEE
VDEMIREADIDGDGQVNYEEFVQMMTAK

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ID CALM_HUMAN STANDARD; PRT; 148 AA.
AC P02593; P70667; P99014; Q61379; Q61380;
BT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DE Calmodulin.
GN (CALM1 OR CAM1.OR CALM OR CAM) AND (CALM2 OR CAM2 OR CAMB) AND
GN (CALM3 OR CAM3 OR CAMC).
OS Homo sapiens (Human),
OS Mus musculus (Mouse),
OS Rattus norvegicus (Rat),
OS Oryctolagus cuniculus (Rabbit),
OS Bos taurus (Bovine),
OS Gallus gallus (Chicken),
OS Anas platyrhynchos (Domestic duck),
OS Xenopus laevis (African clawed frog),
OS Arbacia punctulata (Punctuate sea urchin),
OS Oncorhynchus sp. (Salmon),
OS Oryzias latipes (Medaka fish) (Japanese ricefish), and
OS Torpedo californica (Pacific electric ray).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606, 10090, 10116, 9986, 9913, 9031, 8839, 8355, 7641,
OX 8025, 8090, 7787;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES=Human;
RX MEDLINE=89034207; PubMed=3182832;
RA Fischer R., Koller M., Flura M., Mathews S., Strehler-Page M.A.,
RA Krebs J., Penniston J.T., Carafoli E., Strehler E.E.;
RT "Multiple divergent mRNAs code for a single human calmodulin.";
RL J. Biol. Chem. 263:17055-17062(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC SPECIES=Human;
RX MEDLINE=88059053; PubMed=2445749;
RA Sengupta B., Friedberg F., Detera-Wadleigh S.D.;
RT "Molecular analysis of human and rat calmodulin complementary DNA
RT clones. Evidence for additional active genes in these species.";
RL J. Biol. Chem. 262:16663-16670(1987).
RN [3]
RP SEQUENCE FROM N.A.
RC SPECIES=Human;
RX MEDLINE=85022688; PubMed=6385987;
RA Wawrzynczak E.J., Perham R.N.;
RT "Isolation and nucleotide sequence of a cDNA encoding human
RT calmodulin.";
RL Biochem. Int. 9:177-185(1984).
RN [4]
RP SEQUENCE FROM N.A.
RC SPECIES=Human; TISSUE=Blood;
RX MEDLINE=95010144; PubMed=7925473;
RA Rhyner J.A., Ottiger M., Wicki R., Greenwood T.M., Strehler E.E.;
RT "Structure of the human CALM1 calmodulin gene and identification of
RT two CALM1-related pseudogenes CALM1P1 and CALM1P2.";
RL Eur. J. Biochem. 225:71-82(1994).
RN [5]
RP SEQUENCE FROM N.A.
RC SPECIES=Human; TISSUE=Lymphoma;
RA Kato S.;
RL Submitted (FEB-1995) to the EMBL/GenBank/DBJ databases.

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RN [6]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Human; TISSUE=Lung, Lymph, Placenta, and Urinary bladder;
 RX MEDLINE=22388257; PubMed=12477932;
 RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
 RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
 RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
 RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
 RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
 RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
 RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
 RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
 RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
 RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
 RA Villalón D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
 RA Fahey J., Helton E., Kettman M., Madan A., Rodrigues S., Sanchez A.,
 RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
 RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
 RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
 RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
 RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
 RT "Generation and initial analysis of more than 15,000 full-length
 RT human and mouse cDNA sequences."
 RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
 RN [7]
 RP SEQUENCE.
 RC SPECIES=Human; TISSUE=Brain;
 RX MEDLINE=82231946; PubMed=7093203;
 RA Sasagawa T., Ericsson L.H., Walsh K.A., Schreiber W.E., Fischer E.H.,
 RA Titani K.;
 RT "Complete amino acid sequence of human brain calmodulin."
 RL Biochemistry 21:2565-2569(1982).
 RN [8]
 RP SEQUENCE.
 RC SPECIES=Rabbit; TISSUE=Skeletal muscle;
 RX MEDLINE=81138220; PubMed=7202416;
 RA Grand R.J.A., Shenolikar S., Cohen P.;
 RT "The amino acid sequence of the delta subunit (calmodulin) of rabbit
 RT skeletal muscle phosphorylase kinase."
 RL Eur. J. Biochem. 113:359-367(1981).
 RN [9]
 RP SEQUENCE.
 RC SPECIES=Bovine; TISSUE=Brain;
 RA Kasai H., Kato Y., Isobe T., Kawasaki H., Okuyama T.;
 RT "Determination of the complete amino acid sequence of calmodulin
 RT (phenylalanine-rich acidic protein II) from bovine brain."
 RL Biomed. Res. 1:248-264(1980).
 RN [10]
 RP SEQUENCE.
 RC SPECIES=Bovine; TISSUE=Brain;
 RX MEDLINE=80094551; PubMed=7356670;
 RA Watterson D.M., Sharief F., Vanaman T.C.;
 RT "The complete amino acid sequence of the Ca²⁺-dependent modulator
 RT protein (calmodulin) of bovine brain."
 RL J. Biol. Chem. 255:962-975(1980).
 RN [11]
 RP SEQUENCE.
 RC SPECIES=Bovine; TISSUE=Uterus;
 RA Grand R.J.A., Perry S.V.;
 RT "The amino acid sequence of the troponin C-like protein (modulator
 RT protein) from bovine uterus."

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RL FEBS Lett. 92:137-142(1978).
 RN [12]
 RP SEQUENCE OF 38-60.
 RC SPECIES=Bovine;
 RX MEDLINE=89064822; PubMed=3058479;
 RA Pribilla I., Krueger H., Buchner K., Otto H., Schiebeler W.,
 RA Tripier D., Hucho F.;
 RT "Heat-resistant inhibitors of protein kinase C from bovine brain.";
 RL Eur. J. Biochem. 177:657-664(1988).
 RN [13]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Mouse;
 RX MEDLINE=88257100; PubMed=3384819;
 RA Bender P.K., Dedman J.R., Emerson C.P.;
 RT "The abundance of calmodulin mRNAs is regulated in phosphorylase
 RT kinase-deficient skeletal muscle.";
 RL J. Biol. Chem. 263:9733-9737(1988).
 RN [14]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Mouse;
 RX MEDLINE=90006775; PubMed=2551780;
 RA Danchin A., Sezer O., Glaser P., Chalon P., Caput D.;
 RT "Cloning and expression of mouse-brain calmodulin as an activator of
 RT Bordetella pertussis adenylate cyclase in Escherichia coli.";
 RL Gene 80:145-149(1989).
 RN [15]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Mouse; STRAIN=BALB/c; TISSUE=Brain;
 RA Kato K.;
 RT "A collection of cDNA clones with specific expression patterns in
 RT mouse brain.";
 RL Eur. J. Neurosci. 2:704-711(1991).
 RN [16]
 RP SEQUENCE.
 RC SPECIES=Rat; TISSUE=Testis;
 RX MEDLINE=78066877; PubMed=201628;
 RA Dedman J.R., Jackson R.L., Schreiber W.E., Means A.R.;
 RT "Sequence homology of the Ca²⁺-dependent regulator of cyclic
 RT nucleotide phosphodiesterase from rat testis with other Ca²⁺-binding
 RT proteins.";
 RL J. Biol. Chem. 253:343-346(1978).
 RN [17]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Rat; TISSUE=Brain;
 RX MEDLINE=87246077; PubMed=2885164;
 RA Sherbany A.A., Parent A.S., Brosius J.;
 RT "Rat calmodulin cDNA.";
 RL DNA 6:267-272(1987).
 RN [18]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Rat; TISSUE=Brain;
 RX MEDLINE=87226204; PubMed=3035194;
 RA Nojima H., Hirofumi S.;
 RT "Structure of a gene for rat calmodulin.";
 RL J. Mol. Biol. 193:439-445(1987).
 RN [19]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Rat;
 RX MEDLINE=87257889; PubMed=3037336;
 RA Nojima H., Kishi K., Sokabe H.;
 RT "Multiple calmodulin mRNA species are derived from two distinct

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RT genes.";
 RL Mol. Cell. Biol. 7:1873-1880(1987).
 RN [20]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Rat; STRAIN=SHR;
 RX MEDLINE=89362474; PubMed=2527998;
 RA Nojima H.;
 RT "Structural organization of multiple rat calmodulin genes.";
 RL J. Mol. Biol. 208:269-282(1989).
 RN [21]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Chicken;
 RX MEDLINE=84008199; PubMed=6137485;
 RA Putkey J.A., Ts'Ui K.F., Tanaka T., Lagace L., Stein J.P., Lai E.C.,
 RA Means A.R.;
 RT "Chicken calmodulin genes. A species comparison of cDNA sequences and
 RT isolation of a genomic clone.";
 RL J. Biol. Chem. 258:11864-11870(1983).
 RN [22]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Chicken;
 RX MEDLINE=85104969; PubMed=2981850;
 RA Simmen R.C.M., Tanaka T., Ts'Ui K.F., Putkey J.A., Scott M.J.,
 RA Lai E.C., Means A.R.;
 RT "The structural organization of the chicken calmodulin gene.";
 RL J. Biol. Chem. 260:907-912(1985).
 RN [23]
 RP ERRATUM.
 RC SPECIES=Chicken;
 RA Simmen R.C.M., Tanaka T., Ts'Ui K.F., Putkey J.A., Scott M.J.,
 RA Lai E.C., Means A.R.;
 RL J. Biol. Chem. 262:4928-4929(1987).
 RN [24]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Chicken;
 RA Iida Y.;
 RT "cDNA sequences and molecular evolution of calmodulin genes of
 RT chicken and eel.";
 RL Bull. Chem. Soc. Jpn. 57:2667-2668(1984).
 RN [25]
 RP SEQUENCE FROM N.A.
 RC SPECIES=A.platyrrhynchus;
 RX MEDLINE=93287810; PubMed=8389959;
 RA Kimura N., Kurosawa N., Kondo K., Tsukada Y.;
 RT "Molecular cloning of the kainate-binding protein and calmodulin
 RT genes which are induced by an imprinting stimulus in ducklings.";
 RL Brain Res. Mol. Brain Res. 17:351-355(1993).
 RN [26]
 RP SEQUENCE FROM N.A.
 RC SPECIES=X.laevis;
 RX MEDLINE=84191128; PubMed=6325880;
 RA Chien Y.-H., Dawid I.B.;
 RT "Isolation and characterization of calmodulin genes from *Xenopus*
 RT *laevis*.";
 RL Mol. Cell. Biol. 4:507-513(1984).
 RN [27]
 RP SEQUENCE OF 1-141 FROM N.A.
 RC SPECIES=A.punctulata;
 RX MEDLINE=88172463; PubMed=3351921;
 RA Hardy D.O., Bender P.K., Kretsinger R.H.;
 RT "Two calmodulin genes are expressed in *Arbacia punctulata*. An ancient

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RT gene duplication is indicated.";
 RL J. Mol. Biol. 199:223-227(1988).
 RN [28]
 RP SEQUENCE.
 RC SPECIES=Salmon;
 RA Yazawa M., Toda H., Yagi Y.;
 RT "Amino acid sequence of salmon calmodulin.";
 RL Seikagaku 57:1037-1037(1985).
 RN [29]
 RP SEQUENCE FROM N.A.
 RC SPECIES=O.latipes;
 RX MEDLINE=93012998; PubMed=1398109;
 RA Matsuo K., Sato K., Ikeshima H., Shimoda K., Takano T.;
 RT "Four synonymous genes encode calmodulin in the teleost fish, medaka
 RT (Oryzias latipes): conservation of the multigene one-protein
 RT principle.";
 RL Gene 119:279-281(1992).
 RN [30]
 RP SEQUENCE, AND METHYLATION.
 RC SPECIES=T.californica;
 RA Weise C.;
 RL Submitted (OCT-2002) to the SWISS-PROT data bank.
 RN [31]
 RP SEQUENCE OF 1-27, AND UBIQUITINATION OF LYS-21.
 RC SPECIES=Bovine;
 RX MEDLINE=98380241; PubMed=9716384;
 RA Laub M., Steppuhn J.A., Blueggel M., Immler D., Meyer H.E.,
 RA Jennissen H.P.;
 RT "Modulation of calmodulin function by ubiquitin-calmodulin ligase and
 RT identification of the responsible ubiquitylation site in vertebrate
 RT calmodulin.";
 RL Eur. J. Biochem. 255:422-431(1998).
 RN [32]
 RP METHYLATION.
 RC SPECIES=Bovine;
 RA Weise C.;
 RL Unpublished observations (OCT-2002).
 RN [33]
 RP PHOSPHORYLATION OF THR-44.
 RC SPECIES=Rat;
 RX MEDLINE=22280243; PubMed=12392717;
 RA Ishida A., Kameshita I., Okuno S., Kitani T., Fujisawa H.;
 RT "Phosphorylation of calmodulin by Ca²⁺/calmodulin-dependent protein
 RT kinase IV.";
 RL Arch. Biochem. Biophys. 407:72-82(2002).
 RN [34]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
 RC SPECIES=Rat;
 RX MEDLINE=85188323; PubMed=3990807;
 RA Babu Y.S., Sack J.S., Greenhough T.J., Bugg C.E., Means A.R.,
 RA Cook W.J.;
 RT "Three-dimensional structure of calmodulin.";
 RL Nature 315:37-40(1985).
 RN [35]
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
 RC SPECIES=Rat;
 RX MEDLINE=89110997; PubMed=3145979;
 RA Babu Y.S., Bugg C.E., Cook W.J.;
 RT "Structure of calmodulin refined at 2.2-A resolution.";
 RL J. Mol. Biol. 204:191-204(1988).
 RN [36]

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RP X-RAY CRYSTALLOGRAPHY (2 ANGSTROMS).
 RC SPECIES=Bovine;
 RX MEDLINE=98104088; PubMed=9438860;
 RA Wall M.E., Clarage J.B., Phillips G.N.;
 RT "Motions of calmodulin characterized using both Bragg and diffuse
 RT X-ray scattering.";
 RL Structure 5:1599-1612(1997).
 RN [37]
 RP X-RAY CRYSTALLOGRAPHY (1.7 ANGSTROMS) OF 78-148.
 RC SPECIES=Bovine;
 RX MEDLINE=21263924; PubMed=11320306;
 RA Olsson L.L., Sjolín L.;
 RT "Structure of Escherichia coli fragment TR2C from calmodulin to 1.7 Å
 RT resolution.";
 RL Acta Crystallogr. D 57:664-669(2001).
 RN [38]
 RP STRUCTURE BY NMR OF 76-148.
 RX MEDLINE=94085641; PubMed=8262263;
 RA Finn B.E., Drakenberg T., Forsén S.;
 RT "The structure of apo-calmodulin. A 1H NMR examination of the
 RT carboxy-terminal domain.";
 RL FEBS Lett. 336:368-374(1993).
 RN [39]
 RP STRUCTURE BY NMR OF 76-148.
 RX MEDLINE=96018615; PubMed=7552749;
 RA Finn B.E., Evenas J., Drakenberg T., Waltho J.P., Thulin E.,
 RA Forsén S.;
 RT "Calcium-induced structural changes and domain autonomy in
 RT calmodulin.";
 RL Nat. Struct. Biol. 2:777-783(1995).
 RN [40]
 RP STRUCTURE BY NMR.
 RX MEDLINE=96018613; PubMed=7552747;
 RA Zhang M., Tanaka T., Ikura M.;
 RT "Calcium-induced conformational transition revealed by the solution
 RT structure of apo calmodulin.";
 RL Nat. Struct. Biol. 2:758-767(1995).
 RN [41]
 RP STRUCTURE BY NMR.
 RX MEDLINE=96018614; PubMed=7552748;
 RA Kuboniwa H., Tjandra N., Grzesiek S., Ren H., Klee C.B., Bax A.;
 RT "Solution structure of calcium-free calmodulin.";
 RL Nat. Struct. Biol. 2:768-776(1995).
 RN [42]
 RP STRUCTURE BY NMR.
 RX MEDLINE=98179557; PubMed=9514729;
 RA Osawa M., Swindells M.B., Tanikawa J., Tanaka T., Mase T., Furuya T.,
 RA Ikura M.;
 RT "Solution structure of calmodulin-W-7 complex: the basis of diversity
 RT in molecular recognition.";
 RL J. Mol. Biol. 276:165-176(1998).
 RN [43]
 RP STRUCTURE BY NMR.
 RX MEDLINE=99425120; PubMed=10493800;
 RA Elshorst B., Hennig M., Foersterling H., Diener A., Maurer M.,
 RA Schulte P., Schwalbe H., Griesinger C., Krebs J., Schmid H.,
 RA Vorherr T., Carafoli E.;
 RT "NMR solution structure of a complex of calmodulin with a binding
 RT peptide of the Ca(2+) pump.";
 RL Biochemistry 38:12320-12332(1999).
 CC -!- FUNCTION: CALMODULIN MEDIATES THE CONTROL OF A LARGE NUMBER OF

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CC ENZYMES BY CA(++). AMONG THE ENZYMES TO BE STIMULATED BY THE
 CC CALMODULIN-CA(++) COMPLEX ARE A NUMBER OF PROTEIN KINASES AND
 CC PHOSPHATASES.
 CC -!- PTM: Ubiquitylation results in a strongly decreased activity.
 CC -!- PTM: Phosphorylation results in a decreased activity.
 CC -!- MISCELLANEOUS: THIS PROTEIN HAS FOUR FUNCTIONAL CALCIUM-BINDING
 CC SITES.
 CC -!- SIMILARITY: TO OTHER EF-HAND CALCIUM BINDING PROTEINS.

CC -----

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CC -----

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DR EMBL; L00101; AAA48653.1; -.
 DR EMBL; L00096; AAA48653.1; JOINED.
 DR EMBL; L00097; AAA48653.1; JOINED.
 DR EMBL; L00098; AAA48653.1; JOINED.
 DR EMBL; L00099; AAA48653.1; JOINED.
 DR EMBL; L00100; AAA48653.1; JOINED.
 DR EMBL; M16659; AAA40864.1; -.
 DR EMBL; M27319; AAA35635.1; -.
 DR EMBL; U12022; AAB60644.1; -.
 DR EMBL; U11886; AAB60644.1; JOINED.
 DR EMBL; D45887; BAA08302.1; -.
 DR EMBL; BC003354; AAH03354.1; -.
 DR EMBL; BC005137; AAH05137.1; -.
 DR EMBL; BC006464; AAH06464.1; -.
 DR EMBL; BC008597; AAH08597.1; -.
 DR EMBL; BC011834; AAH11834.1; -.
 DR EMBL; BC017385; AAH17385.1; -.
 DR EMBL; BC018677; AAH18677.1; -.
 DR EMBL; X13817; CAA32050.1; -.
 DR EMBL; J04046; AAA51918.1; -.
 DR EMBL; M19311; AAA35641.1; -.
 DR EMBL; M19312; AAA40862.1; -.
 DR EMBL; M17069; AAA40863.1; -.
 DR EMBL; X13933; CAA32120.1; -.
 DR EMBL; X13931; CAA32119.1; -.
 DR EMBL; X13932; CAA32119.1; JOINED.
 DR EMBL; X05117; CAA32119.1; JOINED.
 DR EMBL; X13833; CAA32062.1; -.
 DR EMBL; X13834; CAA32062.1; JOINED.
 DR EMBL; X13835; CAA32062.1; JOINED.
 DR EMBL; X14265; CAA32478.1; -.
 DR EMBL; D83350; BAA11896.1; -.
 DR EMBL; M36167; AAA48650.1; -.
 DR EMBL; K01944; AAA49668.1; -.
 DR EMBL; K01945; AAA49669.1; -.
 DR EMBL; D10363; BAA01195.1; -.
 DR EMBL; M19380; AAA66181.1; -.
 DR EMBL; M19381; AAA66182.1; -.
 DR EMBL; L31642; AAA65934.1; -.
 DR EMBL; M27844; AAA37365.1; -.
 DR EMBL; X61432; CAA43674.1; -.
 DR PIR; A90719; MCBO.
 DR PIR; A92394; MCCH.
 DR PIR; I49567; I49567.
 DR PIR; I51202; I51202.
 DR PIR; I51402; I51402.

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DR PIR; S02690; S02690.
 DR PIR; S03206; MCRT.
 DR PIR; S37707; S37707.
 DR PIR; S48728; MCHU.
 DR PDB; 2CLN; 15-OCT-94.
 DR PDB; 3CLN; 09-JAN-89.
 DR PDB; 1FW4; 02-MAY-01.
 DR PDB; 1AK8; 17-SEP-97.
 DR PDB; 1CDL; 31-AUG-94.
 DR PDB; 1CDM; 31-AUG-94.
 DR PDB; 1CFC; 07-DEC-95.
 DR PDB; 1CFD; 07-DEC-95.
 DR PDB; 1CLL; 31-OCT-93.
 DR PDB; 1CM1; 04-MAR-98.
 DR PDB; 1CM4; 04-MAR-98.
 DR PDB; 1CMF; 07-DEC-95.
 DR PDB; 1CMG; 07-DEC-95.
 DR PDB; 1CTR; 20-DEC-94.
 DR PDB; 1DEG; 31-MAY-94.
 DR PDB; 1DMO; 01-AUG-96.
 DR PDB; 1LIN; 08-MAR-96.
 DR PDB; 1A29; 16-SEP-98.
 DR PDB; 1MUX; 25-NOV-98.
 DR PDB; 1CFF; 24-SEP-91.
 DR PDB; 1AHR; 16-JUN-97.
 DR PDB; 1AJI; 17-SEP-97.
 DR PDB; 1CKK; 10-SEP-99.
 DR PDB; 1IQ5; 14-JAN-03.
 DR PDB; 1J7O; 07-NOV-01.
 DR PDB; 1J7P; 07-NOV-01.
 DR PDB; 1K90; 23-JAN-02.
 DR PDB; 1K93; 23-JAN-02.
 DR PDB; 1LVC; 04-DEC-02.
 DR PDB; 1NKF; 23-MAR-99.
 DR PDB; 1QIV; 28-MAR-00.
 DR PDB; 1QIW; 28-MAR-00.
 DR SWISS-2DPAGE; P99014; MOUSE.
 DR Aarhus/Ghent-2DPAGE; 9048; IEF.
 DR Genew; HGNC:1442; CALM1.
 DR Genew; HGNC:1445; CALM2.
 DR Genew; HGNC:1449; CALM3.
 DR GK; P02593; -.
 DR MIM; 114180; -.
 DR MIM; 114182; -.
 DR MIM; 114183; -.
 DR MGD; MGI:88251; Calm1.
 DR MGD; MGI:103250; Calm2.
 DR MGD; MGI:103249; Calm3.
 DR GO; GO:0005737; C:cytoplasm; TAS.
 DR GO; GO:0005886; C:plasma membrane; TAS.
 DR GO; GO:0005509; F:calcium ion binding activity; TAS.
 DR GO; GO:0005515; F:protein binding activity; TAS.
 DR GO; GO:0007186; P:G-protein coupled receptor protein signalin...; TAS.
 DR InterPro; IPR002048; EF-hand.
 DR Pfam; PF00036; efhand; 4.
 DR ProDom; PD000012; EF-hand; 2.
 DR SMART; SM00054; EFh; 4.
 DR PROSITE; PS00018; EF_HAND; 4.
 KW Calcium-binding; Repeat; Methylation; Acetylation; 3D-structure;
 KW Phosphorylation.
 FT INIT_MET 0 0

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FT	MOD_RES	1	1	ACETYLATION.
FT	MOD_RES	44	44	PHOSPHORYLATION (BY CAMK4) (MAJOR).
FT	MOD_RES	115	115	METHYLATION (TRI-) (IN BOVINE, CHICKEN
FT				AND TORPEDO).
FT	CA_BIND	20	31	EF-HAND 1.
FT	CA_BIND	56	67	EF-HAND 2.
FT	CA_BIND	93	104	EF-HAND 3.
FT	CA_BIND	129	140	EF-HAND 4.
FT	BINDING	21	21	UBIQUITIN (MULTI-).
FT	CONFLICT	25	25	G -> N (IN REF. 13; AAA66182).
FT	HELIX	5	19	
FT	TURN	21	22	
FT	STRAND	26	27	
FT	HELIX	29	37	
FT	TURN	38	40	
FT	HELIX	45	55	
FT	TURN	57	58	
FT	STRAND	63	64	
FT	HELIX	65	92	
FT	TURN	94	95	
FT	STRAND	100	100	
FT	HELIX	102	111	
FT	TURN	112	113	
FT	HELIX	118	128	
FT	STRAND	136	136	
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	VDEMIREADI	DGDGQVNYEE FVQMMTAK		

//

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into
P62144,
P62146,
P62149,
P62150,
P62151,
P62155,
P62156,
P62157,
P62158,
P62160,
P62161
and
P62204.

UniProtKB/Swiss-Prot 1.12 / 26.6 2004-06-21 ○ ○

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